



Upper Santa Fe Watershed, 1916.

State of New Mexico
Nonpoint Source Management Program
2002 Annual Report



Upper Santa Fe Watershed, 2000.

Top cover picture by Blanchard, courtesy of United States Forest Service Santa Fe National Forest.

Bottom cover picture by Steven Tharnstrom, courtesy of United States Geological Service Jemez Mountain Field Station.



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The year 2002 began with a "splash" for water quality programs across the nation when President Bush announced 2002 as the Year of Clean Water celebrating 30 years of the Clean Water Act. The New Mexico Environment Department recognized this celebration by participating in water quality sampling with students at Cochiti Middle School through the Watershed Watch program administered by River Source and New Mexico Game and Fish Department.

The Surface Water Quality Bureau (SWQB) worked to improve New Mexico's water quality during the Year of Clean Water through positive changes in the CWA §319(h) request for proposals, successful completion of CWA §319(h) projects, and continuing partnerships. This report mentions these milestones and accomplishments, as well as lessons learned.

The SWQB continues to practice strong partnerships with various agencies that can positively affect nonpoint source pollution control. This report contains fiscal year 2002 summaries for those agencies. The partnerships that the SWQB has with watershed groups and environmental organizations are also essential to abating NPS pollution. A list of these groups and organizations is provided in this report as well.

All the agencies and organizations in New Mexico who are cooperatively tackling the state's NPS issues appreciate the support of the Environmental Protection Agency in this effort and look forward to continuing success and cooperation in protecting our water quality.

Sincerely,

A handwritten signature in blue ink, appearing to read "James H. Davis".

James H. Davis, Ph.D.
Bureau Chief

THE STATE OF NEW MEXICO NONPOINT SOURCE MANAGEMENT PROGRAM

2002 ANNUAL REPORT



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2002 ANNUAL REPORT

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The New Mexico
Nonpoint Source
Management Program

NONPOINT SOURCE MANAGEMENT PROGRAM INTRODUCTION

In January 2003 USEPA Region 6 officially approved New Mexico's Nonpoint Source Management Program. The New Mexico Nonpoint Source (NPS) Management Program describes dynamic programs and progressive actions necessary to reduce pollutants from nonpoint sources entering surface and ground water. Implementation of this program will help New Mexico succeed in attainment of surface water quality that will fully protect designated uses (described in the State's water quality standards) and meeting the goals of the Federal Water Pollution Control Act [commonly referred to as the Clean Water Act (CWA)], and ensuring adequate ground water quality for municipal, domestic, and agricultural uses.

The New Mexico Nonpoint Source Management Program (Management Program) was designed to assist in attaining of surface water quality that will fully protect designated uses (described in the New Mexico water quality standards) and meet the goals of the Federal Water Pollution Control Act, or Clean Water Act; and to ensure adequate ground water quality for municipal, domestic and agricultural uses.

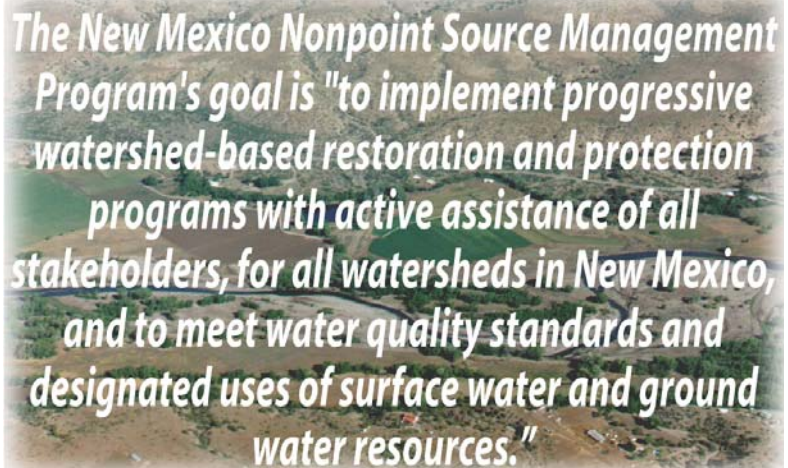
The Management Program involves many voluntary watershed groups, environmental organizations, and government agencies through the CWA §319(h) grant and the NPS Task Force. (See table 1, 2 and map 1.) The NPS Task Force meets quarterly to encourage interagency and inter-organization communication and collaboration. Government agencies are also involved in abating NPS pollution with projects funded in-house.

In New Mexico, eight categories of land management and/or activities have been identified as potential threats to water quality resulting from nonpoint sources and are targeted from abatement strategies and solutions. Principal sources of surface water NPS pollution in New Mexico include erosion from rangelands, agricultural activities, construction, silviculture, resource extraction, land disposal, unsurfaced roads, and recreation. Hydromodification may affect attainment of designated uses by diverting water out of stream channels, by impounding waters, and through channelizing and dredge-and-fill activities. Principal sources of NPS ground water pollution in rural and suburban areas include household septic tanks, cesspools, and agricultural activities.

These categories are addressed for each watershed in the Total Maximum Daily Loads (TMDL) Section .

A five-year plan (found in the Management Program's Plan) addresses NPS TMDLs within the 21 Category I watersheds (those in need of restoration and as determined by the NPS Task Force/Unified Watershed Assessment Work Group). Each year, Category I watersheds are targeted for intensive education and outreach to assist in watershed association formation one to two years prior to TMDL development. Watershed associations then have sufficient time to develop and implement a Watershed Restoration Action Strategy (WRAS) to lower NPS pollutants. (If no associations are formed prior to TMDL development, associations can be formed during TMDL development.) The NMED Surface Water Quality Bureau develops the TMDLs from data acquired by the same bureau. The following year, the CWA §319(h) Request for Proposal is designed to specifically target those Category I watersheds that have previously received intensive outreach.

The ultimate goal of this five-year plan is to manage a balanced program that both addresses existing impairments [found in the 303(d) list] and prevents future impairments with WRAS implementation.



The New Mexico Nonpoint Source Management Program's goal is "to implement progressive watershed-based restoration and protection programs with active assistance of all stakeholders, for all watersheds in New Mexico, and to meet water quality standards and designated uses of surface water and ground water resources."

NPS MANAGEMENT PROGRAM MILESTONES

The Nonpoint Source Management Program milestones have been developed to focus our direction, and implement our strategy for approaching and resolving NPS pollution problems throughout the state. The Management Program has achieved many fundamental, general/institutional, education/outreach, and best management practices milestones. Throughout the 2002 Annual Report, milestones are exhibited through descriptions of CWA §319(h) projects, projects from other governmental agencies, and specifically below. Some milestones have changed due to re-evaluation of the Nonpoint Source Management Plan.

Milestones Achieved

The Nonpoint Source Task Force met quarterly in FY2002. The meetings discussed CWA §319(h) grant proposals for FY2002 and FY2003, the FY2003 EPA guidance, adoption of an outcome funding framework for the Management Program, FY2003 priority watersheds, the 2002 Farm Bill, and the Watershed Initiative Grant. The Nonpoint Source Task Force selected six watersheds (the San Juan Basin, Cimarron, Mimbres, Upper Rio Grande, Chama, and Jemez watersheds) from the 21 Category I watersheds to be targeted for outreach in FY2003.

The Nonpoint Source Management Program adopted an outcome management framework and applied it to the evaluation of FY2003 CWA §319(h) proposals. An outcome management framework encourages evaluation based on whether the outcome of the project is inline with the goal of the Management Program. In the proposal, it is necessary for the organization to explain how their milestones will reach the desired outcome. This framework was initially presented to New Mexico through EPA, Region 6.

The GIS workstation located in SWQB provided information and maps to stakeholders by linking to New Mexico's water quality databases. In FY2002, ARCGIS software was installed on three new computers in order to provide more capability to the workstation.

The Watershed Protection Section of SWQB published the "Clearing the Waters" quarterly newsletter. Each newsletter contains educational information regarding nonpoint source pollution and CWA §319(h) projects to inform stakeholders about the health of New Mexico's watersheds. Log onto <<http://www.nmenv.state.nm.us/swqb/npsnews.html>> to view past and present issues of "Clearing the Waters."

In November 2001, the SWQB installed a library containing information about nonpoint source pollution and best management practices available to the public. The library contains newsletters, technical documents, manuals, federal and state documents, fact sheets, videos, brochures, and other types of publications.

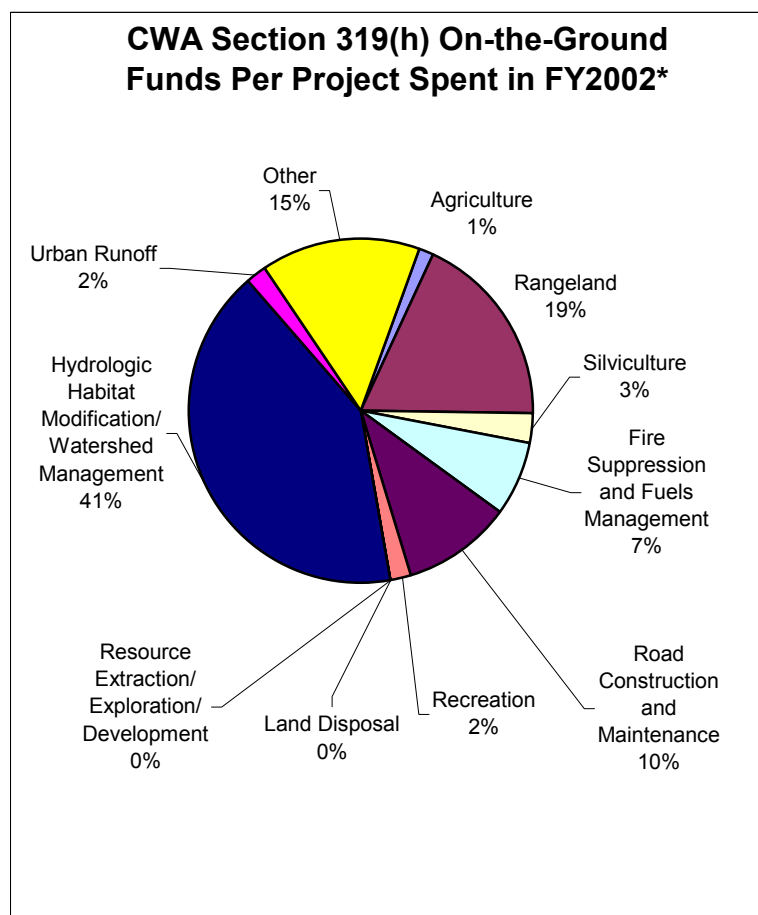
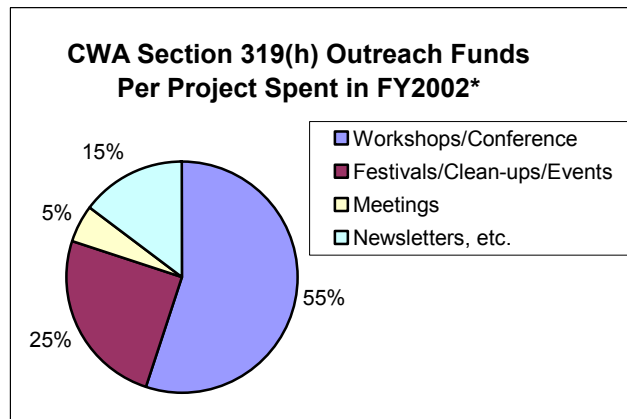
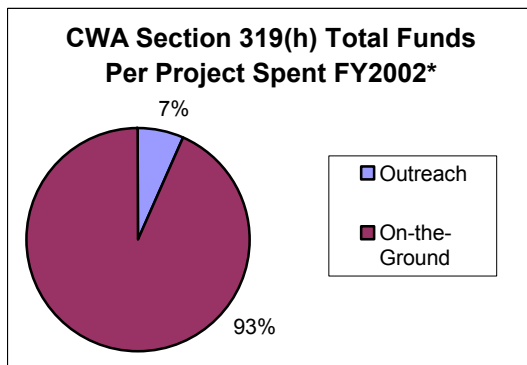
The SWQB participated in many outreach activities, including working with school-age children, attending community events, and conducting public meetings and workshops. Outreach also included many activities celebrating the Year of Clean Water.

Two new watershed groups were formed within the 21 Category I watersheds. The Cimarron Watershed Group was initiated by the Meridian Institute using a CWA §319(h) grant and now continues with members of the watershed actively involved in monthly meetings and applying for watershed restoration grants beyond the CWA §319(h) grant. The Farmington Watershed Group was formed by the Meridian Institute from the same grant. This group comprises of the San Juan Basin, including the San Juan watershed and the Animas watershed.

The volunteer monitoring program at SWQB has been discontinued and adopted by the River Source, which delivers an exceptional program of water monitoring with school children throughout New Mexico and is in contact with the SWQB frequently.

The joint New Mexico State Highway and Transportation Department and New Mexico Environment Department Clean Water Act Section 401 position has yet to be filled. The SWQB and NMSHTD were in discussion about the length of the position with available funds during FY2002

NPS MANAGEMENT PROGRAM FINANCES



*Funds were from CWA §319(h) projects from 1997-2002.



The Nonpoint Source
Management Program
Process

SURVEILLANCE & STANDARDS

The majority of the pollution found from monitoring New Mexico's surface waters is due to nonpoint source pollution. The Surveillance and Standard Section (SSS) of SWQB administers the monitoring and assessment of the State's surface waters. The mission of SSS is to ensure that current and reliable surface water quality data are available for decision-making based on sound scientific methodology. Water quality surveys of streams and lakes are conducted to determine whether New Mexico standards are met and whether the designated uses of the surface waters are supported. The scientific basis for determining TMDLs is provided through monitoring and assessment, as well.

In 2002, monitoring consisted of three-season physical (stream surveys and geomorphology) and chemical sampling, and biological (fish and bug) monitoring. A sampling frequency of eight, based on the application of attainment criteria and human and budget resource constraints, was used to determine if a stream segment was fully meeting its designated uses for metals, chlorine and ammonia with 87% confidence and for temperature, turbidity, pH, and dissolved oxygen with a 70% confidence. Site location and parameters used in 2002 by SSS located at least one site in each assessment unit as defined in the 2000-2002 State of New Mexico 303(d) List for Assessed Stream and River Reaches. Determination of location and parameters was also dependent upon water quality concerns developed by the SWQB staff and by stakeholders at public meetings in the 2002 Category I watersheds.

The Mimbres, San Juan and half of the Canadian watersheds were selected for monitoring in 2002. Within those watersheds, selected stream segments were monitored as well as Navajo Lake, Farmington Lake and Jackson Lake.



Members of the Surveillance and Standards Section of SWQB/NMED use the theodolite to measure stream width.

The SSS maintained and distributed the New Mexico Water Quality Control Commission's (WQCC) Standards for Interstate and Intrastate Streams (Standards) and proposed revisions of the Standards to the WQCC based on survey data. Human health criteria were adopted into the Standards by the WQCC in August 2002 for waters with fishery designated uses. By including the human health criteria, the Standards will now consider the effect the pollutants have on humans consuming fish from the surface waters that have a fishery as its designated use.

TOTAL MAXIMUM DAILY LOAD

The Total Maximum Daily Load process can be best described as determining and planning a watershed or basin-wide budget for pollutant influx to a watercourse. This process involves state and federal agencies, local water users and the public. A TMDL, in actuality, is a planning document. The Total Maximum Daily Load Program under SWQB determines the adequacy and significance of water quality and other supporting data, reviews the effectiveness of existing water quality protection measures, evaluates existing management strategies and develops new water quality management strategies. The TMDL program interactively uses the full resources of the bureau to de-

New Mexico TMDL Schedule

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Lower Pecos River										
Lower Rio Grande										
Domestic Water Supply										
Santa Fe River										
Middle Rio Grande										
Gila Watershed										
San Francisco River										
San Juan River										
Rio Puerco										

velop and coordinate materials that support the current for the CWA §303(d) List State of New Mexico. The CWA §303(d) List is a comprehensive list of impaired streams in New Mexico. The goals of CWA §319(h) awarded projects are to eventually restore impaired streams to beneficial uses.

The Surface Water Quality Bureau developed and sustained a balanced program of assessment and management of NPS TMDLs by using the five-year plan, found in the Mangement Program's Plan, to address NPS TMDLs within the 21 Category I watersheds. The Category I watersheds of FY2002 were targeted for education and outreach to assist in watershed association formation one to two years prior to TMDL development. Clean Water Act §319(h) awards were given to those watershed associations that developed proposals for FY2002 Category I watersheds to ensure that CWA §319(h) monies were directed toward NPS TMDLs.

CWA §303(d) delisted streams related to CWA §319(h) Projects

Impaired streams restored to beneficial uses	CWA §319(h) Projects in area
Oak Creek from Dry Cimarron River to the headwaters	
Mora River (Wolf Creek to Rio la Casa)	2001-E: Community Based Watershed Protection in the Mora Valley
Costilla Creek (Comanche Creek to Costilla Dam)	1991-G: Comanche Creek/Costilla Creek Project
Comanche Creek (Costilla Creek to Little Creek)	1991-G: Comanche Creek/Costilla Creek Project 2001-Q: Quivira Coalition Conservation Ranching-Spreading the Word
Rio de los Pinos (New Mexico reaches)	
Rio San Antonio (Colorado border to headwaters)	
Canjilon Creek (Santa Fe River to Cienga Village)	
Cienega Creek (Santa Fe River to Cienega Village)	2001-N: Santa Fe Botanical Gardens and Las Golondrinas Water Quality Restoration Project
Rio Redondo (Rio Resumidero to headwaters)	
Vallecito Creek (Paliza Campground to headwaters)	
Vallecito Creek (Perennial reaches above Jemez Pueblo)	
Gila River (Mogollon Creek to Gila Hot Springs)	1994-C: Gila/San Francisco Watershed Project 1996-A: Gila River Restoration Project
Bear Creek (Gila River near Cliff to headwaters)	2001-G: Riparian BMPs Implemented in the Cliff-Gila Valley: A Demo Project on the Gila River
Carlisle Creek (Perennial reaches above Gila River)	
Gila River (Arizona border to Red Rock)	1996-E: Lower Gila River Restoration
Gila River (Mangas Creek to Mogollon Creek)	2001-G: Riparian BMPs Implemented in the Cliff-Gila Valley: A Demo Project on the Gila River
Gila River (Red Rock to Mangas Creek)	2001-I: Mangas Water Quality Project
Mineral Creek (San Francisco River to the headwaters)	2001-C: Cedar Breaks Upland Watershed Project
San Francisco River (Whitewater Creek to Largo Canyon)	1994-C: Gila/San Francisco Watershed Project 2001-C: Cedar Breaks Upland Watershed Project
Silver Creek (Mineral Creek to headwaters)	
Trout Creek (San Francisco River to headwaters)	

TMDLs DEVELOPED IN 2002

Jemez River Watershed	
Sulphur Creek Conductivity pH	Rio Cebolla (below Fenton Lake) Stream Bottom Deposits Temperature
Redondo Creek Temperature Turbidity	Rio de las Vacas TOC Temperature (lower, upper)
San Antonio Creek Turbidity Temperature (lower, middle, upper)	Clear Creek Turbidity TOC
East Fork of the Jemez River Turbidity	Rito Penas Negras Stream Bottom Deposits TOC Temperature (lower, middle)
Jemez River Metals (chronic aluminum)	Rio Guadalupe Metals (chronic aluminum)

Red River Watershed
Red River Metals (chronic aluminum)
Bitter Creek Stream Bottom Deposits Metals (acute aluminum)
Pioneer Creek Turbidity
Placer Creek Metals (acute aluminum)
Cabresto Creek Metals (chronic aluminum)

WATERSHED PROTECTION

The Watershed Protection Section (WPS) within the NMED Surface Water Quality Bureau is responsible for organizing all CWA §319(h) related activities in the 21 Category I watersheds through outreach, facilitation, administration and oversight of CWA §319(h) projects.

More specifically, staff within WPS cooperatively work to educate others and implement best management practices to reduce nonpoint source pollutants from entering the surface and ground water resources of New Mexico. Workplans developed and funded under CWA §319(h) comprise a variety of efforts, including watershed association development, riparian area restoration, spill response, and treatment of abandoned mines.

Two years prior to TMDL development, the WPS targets Category I watersheds for intensive education and outreach to assist in watershed association formation. The Category I watersheds for that year are chosen based on the 10-year TMDL schedule (see page 5).

In 2002, targeted Category I watersheds were Jemez, Upper Rio Grande, Pecos, Animas/San Juan, Chama, Dry Cimarron, Gila, Red River and San Francisco watersheds. Award preference was given to those projects that address appropriate causes of non-support in the 2002 targeted Category I watersheds and WRAS development and implementation.

2002 CWA Section 319(h) awards

Project Title	Category I Watershed
Sapello Watershed Restoration Project	Mora Watershed
Gallinas Municipal Watershed Fuels Reduction Project	Pecos Watershed*
Children's Water Festival 2002	Upper Rio Grande Watershed*
Galisteo Watershed Restoration Project-Phase 2	Rio Grande-Santa Fe Watershed
Bank Stabilization Along Southwest Bank of Animas River	Animas/San Juan Watershed*
Rio Gallina Riparian Enhancement and Livestock Impact Reduction Project	Rio Chama Watershed*
Using the New Ranch: Riparian Education and Restoration	Mimbres, Upper Gila-Mangas*, Upper Gila*, Upper Rio Grande*, and San Francisco* Watersheds
River Park Stream Rehabilitation Project	Red River Watershed*
Mangas Water Quality Project-Phase 2	Mangas Watershed*
Rio Puerco Implementation Project	Middle Rio Grande Watershed
San Pablo Subwatershed Collaborative Restoration Project	Rio Puerco Watershed

*2002 targeted Category I watershed

NEW MEXICO MINING ACT

The WPS staff working under the New Mexico Mining Act (NMMA) are responsible for review and comment on proposed mining activities as they will be affected, or regulated by, surface water standards as presented in the State of New Mexico Standards for Interstate and Intrastate Surface Waters – 20.6.4 NMAC, the Water Quality Act (Chapter 74, Article 6 New Mexico Statutes Annotated – NMSA – 1978), the Water Quality Control Commission Regulations (WQCC 82-1, as amended), and the SWQB's standing policies. In addition, the staff reviews and comments on exploration and mine permit applications, mine site closure/closeout plans and mine site discharge permits. This work insures that any range of from exploration, mining or mine reclamation activities do not adversely impact surface waters of the state. The staff also provides surface water oversight for the Terrero Mine Administrative Order of Consent (AOC) and the MolyCorp Mine AOC. Currently, the staff provides additional surface water oversight at MolyCorp Mine for the USGS investigation of baseline and pre-mining ground water quality and the Stability Review Board investigations.

Accomplishment of these objectives often requires coordination between WPS and other sections within the Surface Water Quality Bureau, Ground Water Quality Bureau, Air Quality Bureau, Mining and Minerals Division, NM Department of Game and Fish, USEPA, NM State Historic Preservation Office, US Forest Service, US Bureau of Land Management and the mine operators, including their consultants.

FY 2002 NMMA Staff Activities

Mine Applications	
Minimal Impact Mines	1
Exploration Projects	4
Closure/Closeout Plans	
Final Plan Approval	1
Documents (Review and Comment)	18
Mine Site Investigations/Inspections	33
Public Hearings	5
Public Meetings	8



A URS scientist sampling acid rock drainage seep along the Red River as part of the Remedial Investigation/Feasibility Study for the MolyCorp AOC.

CWA §401 DREDGE & FILL CERTIFICATION

During fiscal year 2002, the Surface Water Quality Bureau continued to review dredge and fill projects for Water Quality Certification under Sections 404 and 401 of the federal Clean Water Act. The purpose of the §401/404 certification program is to ensure that 404 permits issued by the U. S. Army Corps of Engineers (USACE) comply with state water quality standards. For this purpose, the state is divided approximately at Socorro into Northern and Southern jurisdictions. David Menzie of the Silver City office handles the southern section, and Daniel Guevara of the Santa Fe office handles the Northern section.

The Nationwide §404 Permits issued by the Army Corps of Engineers expired during FY 2002 and came up for reissue. The modification and renewal of the Nationwide Permits required that the SWQB review the new permits for water quality certification. The SWQB issued advance water quality certification for Nationwide Permits only for projects in ephemeral channels, which are channels that flow only in direct response to precipitation. As a result, projects in perennial or intermittent channels require review by the SWQB for water quality certification even if they are authorized by a Nationwide Permit. Intermittent channels do not flow year-round but are distinguished from ephemeral channels by the presence of groundwater inputs such as springs. This decision on water quality certification for Nationwide permits was issued on March 15, 2002.

In addition to the Nationwide permits, projects were authorized under Individual and Regional Permits.

ORGANIZATIONS WORKING IN WATERSHEDS

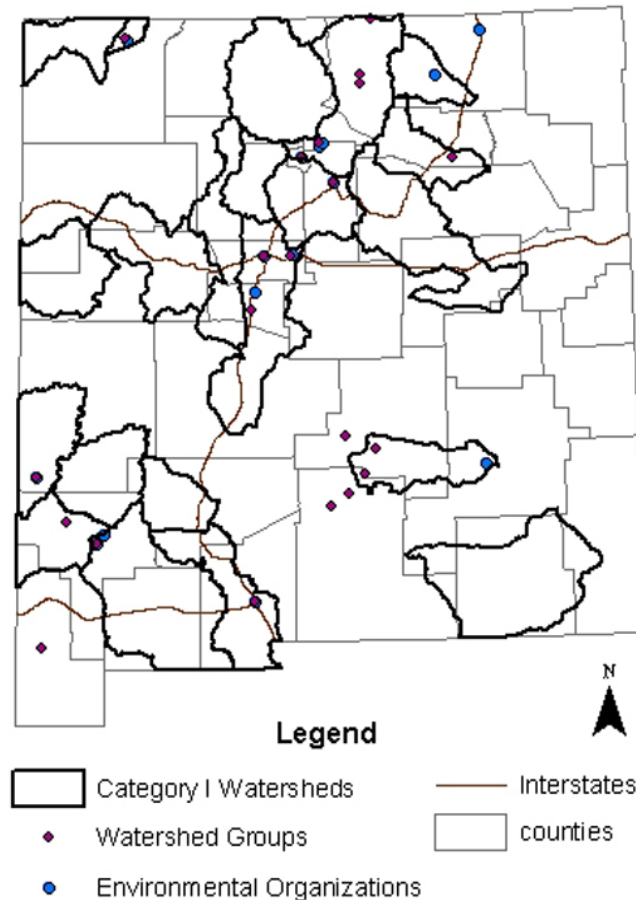
A goal of the NPS Management Program was to encourage the formation of and outreach to organizations that are active in the 21 Category I watersheds. This includes informing organizations of CWA §319(h) request for proposals, receiving the Watershed Protection Section newsletter *Clearing the Waters*, and receiving other notices of SWQB work in the watershed they are active in. Below is a comprehensive list of organizations working in these watersheds.

<p>Catron County Citizens Group Bob Moore HC 61, Box 349 Glenwood, NM 88039 (505) 539-2745 (505) 539-2745 bmoore@gilanet.com</p>	<p>Coalition of Arizona/New Mexico Counties Howard Hutchinson PO Box 125 Glenwood, NM 88039 (505) 539-2709 (505) 539-2709 aznmc@gilanet.com</p>	<p>Continental Divide Trail Alliance Bruce Ward PO Box 628 Pine, CO 80470 (303) 838-3760 (303) 838-3760 cdnst@aol.com http://www.cetrail.org</p>
<p>Gila Fish and Gun Club Brub Stone 981 Santa Clara, NM 88026 (505) 538-2142 (505) 538-2142</p>	<p>Gila Native Plant Society Martha Carter PO Box 1244 Silver City, NM 88062 (505) 388-9221 (505) 388-9221 jmcarter@roadrunner.com</p>	<p>Gila Resources Information Project (GRIP) Harry Browne 306 N Cooper St Silver City, NM 88061 (505) 538-8078 (505) 538-8078 getaGRIP@zianet.com</p>
<p>Gila Watch Michael Sauber PO Box 309 Silver City, NM 88062 (505) 388-2854 (505) 388-2854</p>	<p>Gila Wildlife Rescue Dennis Miller 44 Oakwood Ave. Silver City, NM 88061 (505) 534-8742/538-6640 (505) 534-8742/538-6640 millerd@silver.wnmu.edu</p>	<p>Interhemispheric Resource Center (IRC) Deb Preusch PO Box 2178 Silver City, NM 88062 (505) 388-0208 (505) 388-0208 http://www.irc-online.org</p>
<p>Hawks Aloft Christopher Rustay PO Box 10028 Albuquerque, NM 87184 (505) 828-9455 (505) 828-9455 rustay@hawksaloft.org http://www.hawksaloft.org/</p>	<p>NM Oil and Gas Association Deborah Seligman PO Box 1864 Santa Fe, NM 87504 seligman@nmoga.org http://www.nmoga.org/</p>	<p>NM Trout Unlimited Dave Patton nmtrout@newmexicotrout.org http://www.newmexicotrout.org/index.htm</p>
<p>NM Rural Water Association 3413 Carlisle Boulevard NE Albuquerque, NM 87110 (505) 884-1031 (505) 884-1031 http://nmrwa.org/</p>	<p>Rio Costilla Cooperative Livestock Assoc. Ronald E Martinez PO Box 6806 Santa Fe, NM 87505 (505) 438-2936/476-3281 (505) 438-2936/476-3281 ronemtz@cybermesa.com</p>	<p>NM Citizens for Clean Air and Water Donald A Neeper 2708 Walnut St Los Alamos, NM 87544 nmcit@aol.com http://members.aol.com/nmcit/</p>
<p>San Juan Water Users Association Gary Hathorn 213A South Oliver Aztec, NM 87410</p>	<p>Cattlegrower's Foundation, Inc. Caren Cowan PO Box 7517 Albuquerque, NM 87194 (505) 247-0584 (505) 247-0584 nmcga@rt66.com</p>	<p>Meridian Institute, Molly Mayo PO Box 1829 Dillon, CO 80435 (970) 513-8340 x.310 (970) 513-8340 x.310 mmayo@merid.org http://www.merid.org/</p>
<p>Philmont Scout Ranch Mark Anderson RR 1, Box 35 Cimarron, NM 87714 (505) 376-2281 (505) 376-2281 manderson@philmontscoutranch.org http://www.scouting.org/philmont/</p>	<p>The Quivira Coalition, Courtney White 551 Cordova Rd., Ste. 423 Santa Fe, NM 87501 (505) 820-2544 (505) 820-2544 executive@quiviracoalition.org http://www.quiviracoalition.org/</p>	<p>Conservation Technology Information Center, John Hassell 1220 Potter Drive STE 170 W. Lafayette, IN 47906 (765) 494-6956 (765) 494-6956 hassell@ctic.purdue.edu http://www.ctic.purdue.edu/</p>
<p>The Nature Conservancy of New Mexico Patrick McCarthy 212 E Marcy St Santa Fe, NM 87505 (505) 988-1542 x. 217 (505) 988-1542 salix@ix.netcom.com</p>	<p>Silver City Streetscape Committee PO Box 2443 Silver City, NM 88062 (505) 388-5472 (505) 388-5472</p>	<p>Rocky Mountain Elk Foundation J Richard Brown PO Box 3289 Los Lunas, NM 87031 (505) 866-0129 (505) 866-0129 nmelk@flash.net</p>

Sierra Club, Southern NM Cheryll Blevins PO Box 3705 UPB Las Cruces, NM 88003 (505) 524-4861 (505) 524-4861 spotblev@greatwhite.com	Southwest Environmental Center Kevin Bixby 275 N Downtown Mall Las Cruces, NM 88001 (505) 522-5552 (505) 522-5552 swec@zianet.com	San Juan Watershed Group Gary Broetzman (970) 947-9900 Farmington, NM
Center for Biological Diversity Michael Robinson PO Box 53166 Pinos Altos, NM 88053 (505) 534-0360 (505) 534-0360 http://www.biologicaldiversity.org	Del Agua Institute Rebecca M Summer, Ph.D. 3902 Tom Lyons Silver City, NM 88061 (505) 388-8666 (505) 388-8666 rsummer @zianet.com	Audubon New Mexico, David Henderson P.O. Box 9314 Santa Fe, NM 87504 (505) 983-4609 (505) 983-4609 dhenderson@audubon.org http://www.audubon.org/chapter/nm/nm/rdac/index.html
Animas Foundation/Gray Ranch Dr. Ben Brown HC 65, Box 180 Animas, NM 88020 (505) 548-2622 (505) 548-2622 617-6022@mcimail.com	NM Riparian Council Richard Becker 1005 Indian School Rd., SE Albuquerque, NM 87108 crbecker@swcp.com	Forest Guardians John C Horning 312 Montezuma, Ste. A Santa Fe, NM 87501 (505) 988-9126 (505) 988-9126 jhorning@fguardians.org http://www.fguardians.org
Ogallala Aquifer Institute Dana Woodbury 312 Fennup Dr. Garden City, KS 67846 (620) 271-1554/(c)272-4761 (620) 271-1554/(c)272-4761 dwoodbury@garden-city.org	Santa Fe Watershed Association Paige Grant P.O. Box 31160 Santa Fe, NM 87594 (505)820-1696 (505)820-1696	NM Watershed Coalition Dale A Jones 1191 John Road Belen, NM 87002 dalelois@webtv.com
WRRI Bobby Creel Box 3001, MSC 3167 Las Cruces, NM 88003 bcreel@wrri.nmsu.edu http://wrri.nmsu.edu/	East Jemez Resource Council Todd Haagenstad Los Alamos, NM (505) 665-2936 (505) 665-2936	Cimarron Watershed Group Sarah Walen (970) 513-8348 (970) 513-8348
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Watershed Organizations and Category I Watersheds





Clean Water Act
§319(h) Grant Program

CWA §319(h) GRANT PROGRAM

Clean Water Act §319(h) Projects completed in FY2002 ranged from wetland restoration to stormwater control to erosion control. The following pages describe projects by listing the goal of the project, what the project actually accomplished, and the success and failures of the project. The project recipient, award and cooperators are also listed along with pictures to provide a better description of the project. The projects are organized by watershed.

Río Chama Watershed

FY1998-G Jarosa Allotment Project

Project recipient: Santa Fe National Forest
Project award: \$129,645
Cooperators: Jarosa Allotment Permittees

The project was to improve water quality in the Rio Puerco de Chama, Jaorsa Creek, and Rito Redondo on the Santa Fe National Forest and restore naturally stable hydrologic functions in these streams by improving riparian vegetative cover. The project was also intended to reduce the amount of sediment entering said stream reaches by improving livestock management on the Jarosa Grazing Allotment. This was done by constructing earthen dam structures for water containment, fencing for rotational grazing purposes, cattleguards for elimination of open and close gates, and trick tank structures for water catchment.

The implemented BMPs will help divert wildlife and livestock from riparian environments and perennial streams. The fencing will divide the allotment into smaller units and will help in rotating livestock. Earthen dams and trick tanks were constructed in areas that previously were non-grazed, thereby diverting wildlife and livestock away from perennial streams. The project was very successful in the implementation of the BMPs and networking within the Coyote Ranger District and the Jarosa allotment permittees. The project has been a focus of a public relations campaign to inform the general public in the innovations the Forest Service has taken to protect water quality from wildlife and livestock grazing on public forestlands.

Trick tank and trough used to divert wildlife and livestock away from riparian area.



San Francisco Watershed

FY1998-T & 2001-F Spur Ranch Project, Stage I & II

Project recipient: Spur Ranch

Project award: \$5,292,000

Cooperators: NM Department of Game & Fish, NM EMNRD—Forestry Division, NM State Engineer, Rocky Mountain Elk Foundation, San Francisco Soil and Water Conservation District, Natural Resource Conservation Service, US Army Corp of Engineers, US Fish & Wildlife Service, US Forest Service, Quemado District and Gila National Forest Supervisor's Office.

The objectives of the Spur Ranch Project Stage I and II were to improve water quality by reducing sediment load into the San Francisco River, improve conditions of flow to enhance perennial flow in Centerfire Creek, restore the degraded meadow to approximately an historic level, retain soil on the upper watershed, increase forage and herbaceous production, and improve watershed function.

Due to the size and scope of the project, and the characteristics and flashiness of the Centerfire Watershed, the project was divided in two stages. Stage I involved building a 6.5-foot base for the gradient control structure. Stage II added eight feet to the top of the structure and addressed related erosion management issues on the Ranch. Work remaining on seeding, tree planting, thinning and burning duff and slash, and more bank sloping will continue when time and conditions permit. The completed gradient control structure anchors the Centerfire Watershed and should provide many years of benefit upstream and downstream.

Centerfire Creek before restoration work.



Gradient and sediment control structures.



Sediment collecting in sediment control structure.



Río Peñasco Watershed

FY1997-P Upper Rio Penasco Watershed Project

Project recipient: Lincoln National Forest

Project award: \$120,000

Cooperators: US Fish and Wildlife, NM Dept. of Game and Fish, NM Interstate Stream Commission, Otero County commissioners, Otero Soil and Water Conservation District, Hope Community Ditch Association, and State Historic preservation Office.

This project targeted water quality problems related to road/water interactions located in areas the Upper Rio Penasco where water/road interactions were causing sedimentation, loss of water quality and quantity, and erosion. Site specific improvement activities were planned at each location, and were designed to improve road/water interactions, and protect critical watershed features.

The project was successful in implementing project designs. This was due in part to the interagency agreements, cooperators help, and the state's help in supplying the needed funding, technical expertise, resources, and time.

Rio Penasco wetland protection berm.



Constructed culverts to direct spring water.



Rio Grande-Santa Fe Watershed

FY 2000-F Galisteo Watershed Restoration Project

Project recipient: Earth Works Institute

Project award: \$119,102

The project consisted of local hands-on demonstration projects and a watershed-wide educational outreach program (for landowners and elementary school children, alike) to address reduction of nonpoint source pollution of Galisteo Creek caused by stressors such as the absence of ground cover, poor soil structure, erosion, and streambank and channel instability. The project seeks to alter standing land management policies that promote these impacts

This project has implemented its wide-ranging outreach program, drawing participants from local communities, schools, landowners, and a number of pertinent agencies. On-the-ground demonstration projects were established in three separate sites within the watershed, all spatially associated with problem reaches along Galisteo Creek. These sites have convinced nearby landholders to participate as well, expanding and broadening the local efforts to develop better functioning channels, enhance riparian habitat and stabilize banks along the sediment-impacted creek. The project is judged such a success that a second project phase was granted to Earth Works Institute and the work will be continuing for several more years.



Galisteo Creek as it flows against its left bank, and oversized point bar before implementation.

Galisteo Creek repositioned to a mid-channel area to keep shear pressures off the receding bank, and the detention berm with built-in rock vane structures is beginning to establish new



FY 1997-N Santa Fe Stormwater Management Pilot Project

Project recipient: City of Santa Fe

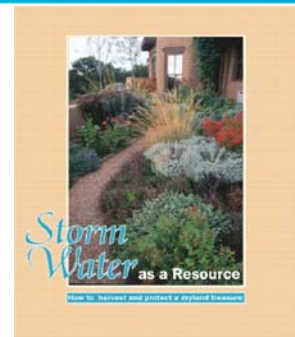
Project award: \$271,000

Cooperators: EJ Martinez Elementary School and the College of Santa Fe

The Stormwater Management Pilot Project for Nonpoint Source Pollution Reduction in Santa Fe (FY97-N), completed in 2002, helped the City of Santa Fe get a head start on NPDES Phase II with public outreach, on the ground demonstrations of stormwater infiltration and erosion prevention practices, and ordinance development. Outreach was achieved with the involvement of virtually every student at EJ Martinez Elementary School, several neighborhood hands-on workshops, numerous small “kitchen table” meetings, and publication of a handbook called *Stormwater as a Resource* and can be found on the web at <www.nmenv.state.nm.us/swqb/storm_Water_as_a_Resource.pdf>.

On the ground demonstrations included a wide variety of techniques implemented on residential, commercial, and institutional property, as well as in open space and within arroyo channels.

Cobble basins at outlets of the Oliver Lafarge Library parking lot are highly visible to library patrons and motorists on nearby Siringo Street.



FY 1997-L Sagebrush Flats Burn

Project recipient: The Conservation Fund

Project award: \$30,000

Cooperators: Santa Fe National Forest, cattle permittees, recreationalists.

The project intended to provide a positive message to the public for fire treatment as a best management practice on forest and range areas. Sagebrush is the dominant species in many parts of this range area and because other forage species cannot compete, especially the grasses, erosion has accelerated. The sediment gets deposited in the Santa Fe River and the Rio Grande.

Selling “fire” as a tool to use in watersheds for control of biological watershed health especially with invasive species and overstocked forests was moderately successful. Mr. William DeBuy presented this viewpoint in seminars throughout the state, in professional journals and in local publications. The fire treated area in early 2000 was marginally successful, and a follow-up fire had been planned, but because of the drought the fire moratorium was never accomplished.

Rio Grande-Albuquerque Watershed

FY 1997-D Abo Arroyo Project

Project recipient: Claunch Pinto Soil and Water Conservation District

Project award: \$25,000

Cooperators: Natural Resource Conservation Service, local landowners

The project identified resource concerns that included erosion of upper watershed soils because of piñon/juniper encroachment and profusion. These trees, especially the one-seeded juniper, inhibit the growth of herbaceous species, including grasses, which help anchor topsoil. Woody species were removed in a mosaic manner, which was typical of the pre-fire suppression era. The management treatment was mechanical tree removal. Approximately 581 acres were treated. Management plans for this area include periodic fire treatment or further tree removal.



Vegetative growth after bundle placement in Abo Arroyo.

FY 2001-T Children's Water Festival 2001

Project recipient: Pioneer West

Project award: \$13,884

Cooperators: US Bureau of Reclamation, City of Albuquerque Public Works Department, Soil and Water Conservation Districts, and numerous volunteers.

The Children's Water Festival 2001 was held on November 8th and 9th at the Albuquerque Convention Center. Attendance this year was the highest ever with more than 1,000 4th grade students from Los Lunas, Rio Rancho and Albuquerque public elementary schools gathering to celebrate water. The project also produced a video on how to hold a water festival that can be obtained by calling (505) 259-7190. The project accomplished its expected goals, although interest in the video has been less than anticipated. The exceedingly long process by which the grant from EPA to NMED was developed and approved, and then by which the contract with Pioneer West to implement the project was approved, has aided the NMED project officer and Pioneer West in more carefully and accurately projecting the timelines and funding schedules of future Children's Water Festivals.



Fourth graders participate in the 2001 Children's Water Festival.

Río Puerco Watershed

FY 1997-J Seniorito Watershed Project

Project recipient: Quivira Coalition
Project award: \$102,234

The primary goal of this project was to stabilize slopes on mine overburden materials on private lands utilizing intensive animal impact ("poop-and-stomp"). Other goals included development of better soils, increased vegetation on slopes, and prevention of rilling and erosion of sediments into the underlying perennial Seniorito Creek. Development of a Watershed Management Plan via a series of team-building meetings to involve local stakeholders in education and planning was another objective.



Slope area above Seniorito Creek before project.

The vast majority of project expenses went toward the poop-and-stomp task. This covered approximately twelve acres, most of it on flat bench topography or the uppermost part of the targeted slopes, on portions of both State land (a mistake in their initial location and setup) and private land. Costs for reclamation were very high compared with other methods, exceeding \$7,700 per acre. Climatic conditions were not cooperative as the area experienced far more drought than beneficial precipitation support. A third party monitoring effort at the conclusion of the project was of the opinion that (quoting W. Barnes' March 25, 2002 Monitoring Report:) "The extent of the vegetative canopy was found to be significantly below pre-treatment levels. Thus far the treatments have been ineffective, as we find soil stability and grass composition to have decreased from pre-treatment levels." The impact from the landowner allowing grazing on the site ahead of schedule was a major negative factor. A number of very useful public meetings and field trips were accomplished, but no watershed plan was developed or implemented.



Slope area above Seniorito Creek during intensive animal impact.

FY 1997-Q Rio Puerco Engineering/Geomorphology Evaluation

Project recipient: New Mexico Environment Dept./Surface Water Quality Bureau/
Watershed Protection Section
Project award: \$90,000
Cooperators: Bureau of Land Management (BLM)

*Bureau of
Reclamation
engineering design.*

The project was to conduct environmental oversight during State Highway 44/US 550 widening and to conduct multi-disciplinary feasibility studies to determine proper engineering and stream morphology design and specifications for the future restoration of a two mile segment of the Rio Puerco. This restoration required taking a heavily-impacted river segment out of a channelized reach and reintroducing it to its more stable natural meandering channel.



NMED-SWQB's frequent day-to-day involvement with the State Highway Department's (NMSHTD) designers and contractors has proven highly beneficial, promoting the inclusion of numerous construction BMPs that prevented any significant spill, drainage or improper design mishaps. Developing a dependable working relationship led to NMSHTD's investment of more than \$3.5M in road, bridge and associated structures to make a future river restoration project possible. The project included a task to complete the Applied Stream Morphology training (Rosgen courses provides the skills to properly design a stable natural channel). Project mapping and geomorphology surveys have provided a basis for handing the project over to the Bureau of Reclamation's Denver Technical Center. Their staff generated engineering designs and specifications for restoration construction elements that are in compliance with, and complementary to, the level of engineering the NMSHTD invested in their bridges and structures. Full project feasibility was realized with respect to all environmental, stream geomorphology and engineering issues, and the project is proceeding to construction, and eventual monitoring stages.



The middle meander restoration zone.

Upper Río Puerco Watershed

FY 1998-I Rio Puerco Riparian Demonstration

Project recipient: Forest Guardians
Project award: \$20,000

*Scant riparian
resources
along Rio Puerco.*

The project was to validate the Forest Guardian's initial assertion that fencing off a stream reach to restrict any and all grazing activities would lead to its environmental recovery, habitat creation and improvement toward proper stream function. Numerous scientific monitoring programs were originally proposed to demonstrate how restricting grazing would lead to the improvements of the river channel, banks and the local habitat.



The fencing out of grazing livestock and the planting of large numbers of willow and cottonwood poles did show some initial visual improvements. However, none of the proposed scientific approaches were attempted by the project recipient (stream morphology surveys, aquatic and avian assessments) and the unforeseen impacts due to browsing elk (who consumed the majority of the cottonwood plantings) led to the main improvement seen at the project being enhancement of willow resources in the riparian margins. No local improvement to stream condition and function were documented as a result of the modest improvements to riparian margins and some development of vegetation on portions of the sandy point bars.

*Five months after plantings
of willow and cottonwood
and closed to grazing.*



Lower Pecos-Red Bluff Reservoir Watershed

FY 1997-H Sitting Bull Falls Water Protection/Habitat Improvement

Project recipient: Lincoln National Forest-Guadalupe Ranger District
Project award: \$22,700

*Eroding roadside
ditch mobilized
the sediment.*

The project contributed funding to US Forest Service site reconstruction project that was specifically aimed at assuring that impacts on the recreation site's waters are prevented during construction activities, and that existing impacts to water quality and riparian habitat are addressed and mitigated during and after the reconstruction project.



Without the input of CWA §319(h) funding the issues regarding site drainage, bank stabilization, nutrient loading, and human impacts on the riparian resources, and sediment delivery to the creek probably would not have received attention under the USFS's limited construction budget. While these issues were addressed, and implementation appears to be functioning to the benefit of the surface waters and local habitat, other issues such as local grazing management and determination of nutrient sources leading to algal blooms and eutrophic stream conditions are just coming to light. It is hoped that NMED-SWQB's input and participation leads the USFS to consider taking additional future actions to protect resources in this unique area.

*Slopes created to prevent
ditch development and
sediment delivery.*



San Juan Watershed

FY 1998-C Naschitti NPS Range Project

Project recipient: Ft. Defiance Soil and Water Conservation District

Project award: \$36,000

Cooperators: Navajo Resource, Conservation & Development and the Navajo Nation Environmental Protection Agency, Water Quality Program

The rangeland conditions from Twin Lake, NM to Shiprock, NM (S.R. 666) are some of the worse in the State with only 5% to 15% ground cover. Water and wind erosion rates presently exceed 62 tons/acre/year. This wind blown and water borne sediment makes its way to the Chaco and San Juan Rivers via numerous washes. This project is to reduce wind and water borne erosion through the fencing of five sections with Navajo families for rotational grazing and containment, and public relations with local school systems.

This project is located in a desert environment and intended as the project was it may not help because of the harsh environment that exists in this area. The soil type, lack of water and the summer temperatures makes it hard for vegetative cover to grow on this site. The vegetation that does exist is very fragile and grazing ungulates is an additional stress on this type of environment.



Naschitti Range project site.

Cimarron Watershed

FY 1999-Q Angel Fire Erosion Control Project

Project recipient: Davis Resource Consultants

Project award: \$81,585

Cooperators: Angel Fire Resort

8/29/99-No animal impact. High moisture season.

The purpose of the project was to reduce erosion, turbidity and sedimentation of Agua Fria and Cienegilla creeks by treating the upland watershed area on the ski slopes. The upland vegetative cover was to increase by 50%, and a decrease of 45% and 30% in stream sedimentation and water turbidity, respectively, was expected. 'Animal impact' was the tool chosen to improve the ecological condition of the slopes to harvest old plant material, loosen hardened and impermeable soil surfaces, increase organic matter in the soil, and plant seeds.

Monitoring of ground cover composition provided excellent data for measuring the success of the project. Highly erosive bare ground is the sole source of sedimentation and turbidity. Any increase in cover of bare ground directly translates to reduced sedimentation and turbidity in streams. One year after completion, a 70% decrease in bare ground on areas treated with animal impact is shown.



8/15/02-Animal impact during July 1999. Low rainfall 2000 through 2002.



El Paso-Las Cruces Watershed

FY 1998-F South NM Agrichemical Handling Facility Demonstration

Project recipient: La Union Soil & Water Conservation District
Project award: \$25,000 federal dollars
Cooperators: Jornada Resource Conservation & Development Council, Natural Resources Conservation Service, the Lyle Farm, and the Koenig Farm.

The project was to demonstrate the utility of agrichemical handling facilities (AHFs) as a proven best management practice through the construction of two AHFs on working farms in the Mesilla Valley, the development of an AHF information package for education/outreach to local farmers, and a continuing interest by local farmers to implement this BMP on their own farms.

This project was delayed for about one year due to the loss of key personnel. Project success is highly dependant on consistent involvement by key people. Persistence and patience pay off eventually. Farmers are interested in best management practices (BMP) like this. They readily recognize the practical value for their operations in terms of centralized handling and mixing of agrichemical products. They also recognize the environmental benefit of reducing non-point pollution through the use of BMPs like this.

Below are two agrichemical handling facilities constructed during the project.



FY 1999-B Picacho Bosque Wetland Restoration

Project recipient: Southwest Environmental Center
Project award: \$7500
Cooperators: Elephant Butte Irrigation District, Bureau of Reclamation, New Mexico Game and Fish, Natural Resource and Conservation Service, International Border and Water Commission, and New Mexico State University.

The Picacho Bosque Wetland Project was supposed to reduce loading sediment, salinity, sulfates, chlorides, TDS, nutrients, phosphorous, nitrogen and organic pollutants in drain return flow to the Rio Grande. This project was also intended to control algal blooms, control salt cedar, establish year round wetlands and native vegetation including grasses, forbs, shrubs, and trees, such as cottonwoods/willows utilizing pole plantings and intensive labor. This project intended to alleviate flooding by storing over bank flows, control erosion by reducing stream water velocities, dispersing wave energy and recharge groundwater.

The constructed wetland project addressed every source of non-support as referenced by current literature. The ecological benefits are numerous. Substantial benefits are realized from treatment of uplands and low lands by utilizing wetlands and riparian zones. Constructed wetland treatment of non-point source pollution is an innovative management practice, which may be especially useful in the future along the Rio Grande.



Fencing wetland area at Picacho Bosque.

FY 1999-P Bosque Tierra Mojada Wetland Restoration Project

Project recipient: La Union Soil and Water Conservation District

Project award: \$15,450

Cooperators: New Mexico State University, Gadsden Independent School District, United States Corp of Engineers, New Mexico Natural Resources Department and the International Boundary and Water Commission.

The project was to develop ponds as an integral functioning system to be part of a return irrigation flow into the Rio Grande, clear salt cedar monoculture, establish native vegetation, and create an island for demonstrations to public elementary and high school teachers of "Wetlands: Our Precious Resource." This project was to also fence off the Rio Grande levee, post a sign, and improve water quality leading to improved aquatic habitat.

The project was unfortunately unable to develop an educational component as originally envisioned. Meetings were held and on one occasion a large group of teachers from the Gadsden School District participated in a site tour and lecture, or presentation entitled "Wetlands: Our Precious Resource." Most people involved understand the importance of wetlands not only for water quality but also for aquatic habitat diversity .

FY 1999-C Lower Rio Grande Precision Farming

Project recipient: La Union Soil & Water Conservation District

Project award: \$100,000

Cooperators: Jornada Resource Conservation & Development Council, Natural Resources Conservation Service, New Mexico State University, numerous local farmers .

The project's goals were to demonstrate NRCS holistic irrigation technology and precision agriculture technology to farmers in the Mesilla Valley. They also created an agricultural decision support system for use by local farmers, and increased the number of farmers using this technology because the application of precision farming technology results in reduction of agricultural inputs (chemicals and sediment) into surface and groundwater.

Statewide

FY 1997-K NMSU TMDL Cost Estimate Model

Project recipient: NMSU, College of Agriculture and Home Economics

Project award: \$23,404

The project was designed to develop a budget or cost estimate model for Total Maximum Daily Load development in New Mexico. This was developed, and with this document showing the "Attitudes Toward Water Quality, the Environment, and Agriculture in New Mexico", a final document entitled, "The Clean Water Act and TMDLs in New Mexico: Frequently Asked Questions" was published.

The project proceeded slower than anticipated because of lack of staff. The TMDLs were already being developed by NMED when this project was finalized.



Other NPS Control
Programs in
New Mexico

OTHER NPS CONTROL PROGRAMS

In New Mexico, 34.2% of lands are publicly owned and managed by the federal government. Federal land management is of great concern to the State because of the proportion of the State's waters located within federal lands. As one example, SWQB has estimated that 1,800 of 6,000 miles of New Mexico's rivers and streams are located on US Forest Service lands, which constitute approximately 11% of the State's area. Privately owned lands constitute about 44% of the State. These figures indicate that over three-fourths of New Mexico is federally or privately managed, the NPS Management Program is focused on both federal land management agencies and federal, state, and local programs that can influence and support beneficial land management by private individuals. Land management practices, including water quality BMPs, are implemented by land owners/operators and management agencies.



The New Mexico State Highway and Transportation Department/New Mexico Environment Department Task Force was created to provide better communication between both departments regarding environmental concerns. Maryann McGraw of the NMED SWQB Watershed Protection Section is the NMED liaison for the Task Force and reported that the Task Force met March 12 and June 25, 2002. Informal subcommittees also met throughout the year. Listed below are the accomplishments of the past year's meetings.

NMSHTD District Environmental Oversight Contract

A District Environmental Oversight Contract was funded by NMSHTD to oversee the construction of highway projects with special environmental commitments. At the March Task Force meeting, Bill Hevron of Ecosystems Management, Inc. made a presentation to the Task Force explaining the process for overseeing construction for compliance with regulatory permits and the environmental issues identified in the environmental notes portion of construction plans. Ecosystems Management has worked on 42 construction projects since January 2001 when the oversight contract began.

NM 555 Update

This project entailed the emergency stabilization of four eroding sites along NM 555. During a 20-year storm event that occurred in 2000, parts of NM 555 washed out due to flooding of the Canadian River adjacent to the roadway. The draft restoration plan for permanent measures is pending completion. NMSHTD received a geomorphologic study conducted by USGS in July 2002, and the NMSHTD restoration plan is pending.

Participation of NMSHTD in Watershed Groups

NMSHTD has designated a representative from their Environmental Section to be available for participation in Watershed groups in New Mexico. Presently, NMSHTD is participating in the development of the Watershed Restoration Action Strategy for Cordova Creek (Upper Rio Grande Category I watershed).

Update of Amendments to MOU

The Recitals and Responsibilities portion of the Memorandum of Understanding between NMSHTD and NMED has been revised by the Core Group Members of the NMED/NMSHTD Task Force in January 2002. The revised MOU will be adopted in 2003.

Emergency Response

The NMSHTD was briefed by the New Mexico Environment Department Hazardous Waste Bureau on the Environment Department's central receiving point for chemical, biohazard, and petroleum product spills, complaints and incidents.

Illegal Asphalt Dumping Issues

The New Mexico Environment Department Ground Water Bureau (GWB) received information regarding an asphalt plant associated with a highway project where asphalt was dumped in the arroyo and other violations with the potential for leaching to ground water. The GWB stated that for a discharge for greater than 120 days, a Notice of Intent for a temporary asphalt plant must be submitted to GWB. The GWB Permitting Section will determine if a discharge plan will then be needed. NMSHTD will report to GWB with the results of the investigation.

Salt Pile BMP Guidance

A guidance document for containment of salt piles at Highway District Patrol Yards was prepared by the GWB in cooperation with Highway Department staff. The Salt Containment Guidelines are now on the NMED website and have also been provided to salt suppliers, county yards, highway yards, etc. NMSHTD reported that they are still moving toward the use of chemical de-icers. The NMSHTD Research Bureau is also conducting a study of BMP's to contain salt piles. The database will show exactly where highway salt piles are around the State and how much salt they contain. This information will be coordinated with NMED and will be distributed to all of the NMSHTD districts.

Tire Bales

The NMED Solid Waste Bureau has been in contact with NMSHTD to get tire bale technology approved for use in highway construction projects. Tire bales can be used for erosion control measures and bank stabilization.

FHWA Southern Resource Center Annual Environmental Conference

The Southern Resource Center Environmental Conference hosted by NMSHTD and Federal Highway Administration was held in Santa Fe, June 2002. This Conference presented a chance for additional input from NMED on a number of environmental topics. In the future, each agency will support the efforts to work for the common purpose of protecting the State's environment and managing the State's transportation system for the best interests of the people of New Mexico by making presentations and letting each agency know well ahead of time about conferences of mutual interest.

Tribal Issues - NMSHTD and NMED reported on their roles regarding tribal coordination for their respective departments. NMED has 4 cooperative agreements with different tribes around the State, and several tribes have established good working relationships with NMED-SWQB through their participation in watershed groups and CWA Section 319(h) grants. NMED and NMSHTD will share contacts and expertise regarding issues of concern on tribal lands.

NMSHTD aerial photography services for NMED projects - NMSHTD has extended an invitation to NMED to share its aerial photography services and expertise for NMED projects. The NMSHTD works on low altitude, high-resolution photography, reconnaissance and stereo mapping. They also have an extensive library of old aerial photography associated with highway construction projects. NMSHTD conducted aerial photography of the entire Cordova Creek watershed (Upper Rio Grande Category I watershed) in April as part of that watershed's WRAS inventory. NMSHTD also provided a cost estimate and commitment to services for the Rio Puerco Main Stem and Torreon watershed studies (Rio Puerco Category I watershed) for a total of \$9800 as a matching contribution for this project.

Ponil Watershed Fire

A map of the Ponil Watershed burned area was presented to the Task Force. The map showed that flooding and sedimentation from the burned area could threaten US 64 and State Road 204. Highway representatives joined the BAER team to provide input and to mitigate the effects of the Ponil Fire.

Clean Water Act Section 401 language and conditions and State's responsibilities regarding TMDLs. How do we incorporate measures to deal with TMDLs on a project?

The SWQB CWA Section 401 officer reported on the CWA Section 401 language and conditions for the new CWA Section 404 Nationwide permits. NMED would like to work with NMSHTD to prevent increases of pollutants in water bodies where the State's Water Quality Standards are already exceeded or threatened.



NEW MEXICO STATE LAND OFFICE

The New Mexico State Land Office Riparian Improvement Program has been developing rapidly since its inception five years ago with the Macho Creek project in southwest New Mexico. Today, projects to improve riparian conditions have been implemented at Macho Creek in Catron County, Bluewater Creek in Cibola County, Maudes Canyon in Grant County, the Santa Fe River in Santa Fe County, Gallegos Canyon in Torrance County, Monticello Box in Sierra County, and Pump Canyon in San Juan County. In Chavez County, staff is working with agricultural lessees and the State Forestry Division to reintroduce the native Pecos sunflower into moist soil and wetland habitats in the Pecos River basin.

In FY 2001, the Land Office began to use Land Maintenance Fund monies to plan and implement watershed and forest health projects near communities identified by the State Forestry Division as being at risk from catastrophic wild fire. These projects have several objectives including improvement of forest health, improvement of watershed condition, improvement of wildlife habitat, and reduction of fire danger. Each project could have direct water quality benefits through improvement of watershed conditions and reduction of erosion. Projects active during the last year are summarized below.

Moon Mountain in Ruidoso

Project Results: 74 acres treated to create defensible space against wildfire adjacent to homes and Ruidoso High School. Ruidoso community was identified by State Forestry Division as one of 20 communities most at risk from wildfire. The project also improved watershed/forest health by reducing tree densities. Monitoring transects to track improvement in vegetation were established. Planning for treatment of an entire section of trust land on Moon Mountain has been accomplished including identification of cultural and biological resource issues and prescriptions for thinning to enhance resource values.

Cooperators: NM State Land Office, State Forestry Division, and Village of Ruidoso.

Angel Fire, Colfax County

Project Results: 54 acres treated to create defensible space against wildfire adjacent to mobile home village. Angel Fire community was identified by State Forestry Division as one of 20 communities most at risk from wildfire. This project also improved watershed/forest health by reducing tree densities. Monitoring transects to track improvement in vegetation established. Planning for entire section of trust land has been accomplished including identification of any cultural and biological resource issues and prescriptions for thinning to enhance resource values.

Cooperators: NM State Land Office, State Forestry Division, and Village of Angel Fire.

Rio Hondo Basin near Capitan

Project Results: 183 acres of Pinyon/Juniper were cut or pulled to clear meadows and reduce tree density on State Trust lands between Capitan and Ft. Stanton. Slash from project was used to stabilize arroyos and head cuts in the project area. Project will improve watershed health, forage production and wildlife habitat. In conjunction with similar private and federal land management efforts, watershed improvement and forest health work conducted in this area is expected to improve hydrologic conditions and water quality in the Rio Hondo.

Cooperators: NM State Land Office, State Forestry Division, Hondo Soil and Water Conservation District, U.S. Natural Resources Conservation Service, U.S. Bureau of Land Management.



Rio Grande Bosque in Albuquerque

Project Results: 80 acres of State Trust Land within the Rio Grande Bosque State Park were treated to remove non-native salt cedar and Russian olive and to remove build up of dead and down vegetation creating a severe fire hazard. This area of the Albuquerque Community was identified by the State Forestry Division as one of 20 communities at risk from wildfire. Project will reduce fire danger, improve wildlife habitat and aesthetic value as well as reduce water use by non-native species. Transects will be established in November to track improvement in under story vegetation.

Cooperators: NM State Land Office, State Forestry Division, Middle Rio Grande Conservancy District, City of Albuquerque Open Space Division.

Maudes Canyon, Silver City

Project Results: During the year, fencing was installed to stop use of the area by all-terrain vehicles. A revised project plan has been submitted to NMED for work in the coming year. Work will include removal of non-native vegetation and control of erosion from a road and several head cuts that have started in side channels. Maudes Canyon is a tributary of the Mimbres River. Silver City is considering whether to include the Maudes Canyon area as a component of their trails and open space program.

Cooperators: NM State Land Office, NM Environment Department, Western NM University, City of Silver City, Native Plant Society.

Santa Fe River

Project Results: Approximately 3/5ths of a mile of the river on State Trust land in Santa Fe County have been treated to improve functioning condition of the river channel and flood plain. Riparian vegetation has been planted, riverbanks stabilized, trash removed and river grade stabilized to reduce down cutting. The primary source of funding for this project has been the Clean Water Act Section 319(h) grant. Land Maintenance funds have been used to supplement project planning and monitoring. Channel cross-sections have been established to monitor channel configuration and stability, shallow ground water wells established to monitor water levels and a crest stage gauge installed to measure high flows. This project has a very strong education component working with various schools in the area and a local group of the Youth Conservation Corps.

Cooperators: NM State Land Office, NM Environment Department, City of Santa Fe, County of Santa Fe, Santa Fe Watershed Association, Youth Conservation Corps, various elementary and middle schools.



"River Angels" participate in activities on the Santa Fe River

Macho Creek

Project Results: Primary emphasis of this project has been to demonstrate recovery of the riparian area with proper grazing management. Allowing only dormant season grazing has resulted in vigorous plant growth in the riparian area. Efforts during the last year included fence construction and maintenance to prevent trespass grazing and development of a new project to provide wildlife water from a spring tributary of Macho Creek called Walnut Spring. This latter project has been funded through the U.S. Fish and Wildlife Service Partners for Wildlife program.

Cooperators: State Land Office, Quivira Coalition, Hawks Aloft, Agricultural lessees, U.S. Fish and Wildlife Service.

Bluewater Creek

Project Results: Monitoring this year showed that revegetation efforts along this creek have been successful. Willows, cottonwood and herbaceous riparian plants are becoming well established and helping to stabilize the channel and reduce erosion. Periodic maintenance work is required to maintain fences and other barriers to motorized vehicles in the area, as is the need to periodically remove trash left by recreational users.

Cooperators: State Land Office, U.S. Forest Service, N.M Environment Department, State Parks Division.



NM Forestry Division promotes the ongoing BMP clauses in resource management plans and timber sale contracts through the application of technical forest resource management assistance to private landowners. The Forestry Division was successfully in implementing new harvest regulations on state and private lands in January 2001.

Last year New Mexico experienced one of the worst fire seasons in state history. Major fires occurred on all districts with the largest fire being the Ponil at over 92,000 acres. The Division worked with landowners that experienced loss from these fires to salvage material and re-seed areas. The division also instructed landowners about erosion

control methods that could be used to reduce the amount of soil movement after a area has been burned.

The Division has participated in forest management plans that include forest stewardship, revised forest stewardship plans, practice plans, and forest management plans. Included in this numbers are stewardship plans covering in Level 1 watersheds.

As reported in Section II.B.2, the NM Forestry Division has been successful in incorporating BMP clauses into resource management plans and timber sale contracts.

NM Forestry monitors the application of BMPs during the harvesting of forest products on private lands with a final assessment performed at the completion of sale. This is an ongoing assessment on each harvesting unit.



USDA Forest Service

*Caring for the Land and
Serving People*



The Santa Fe, Carson, Cibola, Lincoln, and Gila National Forests continue to take an active role in addressing nonpoint source pollution and watershed health in New Mexico.

In 2002, the Forest Service has been particularly involved in activities addressing both the prevention of catastrophic fires and the rehabilitation of watersheds after such fires. The threat of catastrophic fires has been a major concern this year as a result of severe drought conditions throughout the state.

These drought conditions and threat of wildfires were serious enough for the Forest Service to, first impose fire restrictions, and then later, close the forests to the public for several weeks. Furthermore, several Forest Districts reduced stocking, and imposed delayed entry dates and early exit dates for grazing allotments. Some Districts chose not to allow any stocking on certain allotments and a few permittees voluntarily kept their cattle off Forest Service allotments.

For the purposes of improving watershed and forest health and preventing catastrophic fires, the Forest Service, this year, focused resources on addressing overcrowded stands through prescribed burning and mechanical thinning. Over 26,000 acres of National Forest lands were treated.

There were numerous wildfires during the year, many of which damaged National Forest land. Fire rehabilitation efforts, which were implemented as quickly as possible after fires, included seeding; seeding/mulching; contour log felling; sediment retention basins; riparian plantings; channel stabilization including trash racks and log erosion barriers and check dams; channel debris removal; and reforestation.



*Fire restoration after Dalton
Fire in Pecos Headwaters.*

Many of the Forest Districts continue to improve grazing management. Numerous stock tanks have been constructed for the purpose of improving livestock distribution and drawing the cattle out of the riparian areas and wet meadows. Fencing and riparian exclosures have also been expanded to protect sensitive areas. The Rowe Mesa grassbank continues to allow for much needed rehabilitation to Forest allotments whose permittees participate in the program.

Regular road maintenance and reconstruction continued on National Forest land. Such maintenance includes creating sediment traps to intercept road sediment, culvert clean-out to improve drainage, improved culvert splash pads, etc. In addition, there have been road closures and relocations, primarily to eliminate impacts to streamside riparian areas and wet meadows.

The Forest Service also began evaluating rivers and river segments within National Forest land to develop a list of eligible rivers for potential classification as part of the Wild and Scenic River Act.

Several Forest Districts have been active in public outreach and education and technology transfer. Much of the focus this year has been on the dangers of fire, fire prevention, and the value of fire as a management tool. Teaching students the importance of clean water for fish has also been a focus for some Districts.

Due to the impacts that camping areas can have on riparian areas and water quality, some Districts are focusing on moving recreation areas away from sensitive areas or making changes such as installing public toilets, planting riparian vegetation, seeding bare areas, and improving drainage to existing sites. In some areas where dispersed recreation is a problem, fences and road barriers have been constructed. A major public outreach effort in the Jemez Ranger District which is partly funded by CWA §319(h) funds will directly contact campers to educate them on the water quality impacts of current dispersed camping habits and to explain the improvements that are and will be made to protect water resources.

The Forest Service has also created more partnerships with other agencies and outdoor groups. These partnerships provide more resources and technical assistance for projects and allow for a more watershed focus to monitoring,



Rangeland Health/Restoration - Slane Canyon Tree Thinning

Project recipient: Farmington Field Office, BLM

Project Location: Upper San Juan and Animas watersheds

Project cost: Approximately \$12,000 BLM funds

Approximately 125 acres piñon-juniper encroachment was thinned to reduce fuel loading, improve watershed and provide fuel wood for the public. The thinning took place in what were once grassy valley bottoms that have been overtaken by piñon - juniper because of the lack of natural fire to suppress the tree encroachment.

This project removes vegetative competition allowing for an increase in herbaceous vegetative growth that improves the watershed, forage values for livestock and wildlife and improves water quality by reducing erosion and sediment transport. In addition, fuel wood is made available for the public (which is in limited supply), prevents illegal wood gathering, and creation of unauthorized roads. The lack of fine fuels to carry a prescribed fire has brought about this approach to invading piñon-juniper, thus cost per acres are high due to thinning crews labor.

Monitoring for success on improvement to watershed and revegetation will be evaluated. If evaluations indicate improved watershed values, this practice will continue to be utilized in areas that are good candidates for this type of management treatment.



Valley bottom piñon-juniper encroachment before tree thinning management application.



Prescribed fire to burn slash piles and remove sagebrush after fuel wood gathering completed.

Gila Lower Box Riparian Expansion

Project recipient: Las Cruces Field Office, BLM

Project location: Upper Gila-Mangas Watershed

Livestock grazing has been excluded from much of the 10-mile stretch of the Gila Lower Box since the early 1990's. The exclusion of livestock has rapidly improved riparian and riparian habitat conditions and the population of Southwest Willow Flycatchers. Surveys conducted in 2002 showed 29 nesting pairs and 109 (adult and young) individual Willow Flycatchers following the nesting season within the Gila Lower Box. A macroinvertebrate survey conducted in 2002 also indicated a stream health of very good to excellent based on the presence and/or absence of certain taxa found during the survey. An additional 60 acres and $\frac{3}{4}$ mile of the Gila River was fenced in 2002 to exclude livestock and to improve riparian functioning condition, enhance riparian habitat, and improve water quality.

Transportation and Roads - Arkansas Loop Road Reconstruction

Project recipient: Farmington Field Office, BLM

Cooperators: Burlington Resources, Inc. and San Juan County

Project location: Animas Watershed

The safety of the Arkansas Loop road was a concern for several years. The route contained several major gas gathering lines that were exposed due to poor road design, maintenance and erosion. Through the San Juan Basin Public Roads Committee it was determined that approximately eight miles of this road needed immediate attention because of safety concerns. Through a collaborative effort between BLM, San Juan County and Burlington Resources, Inc. this section of road was completely reconstructed and surfaced using crushed sandstone material that was readily available in the area. Incorporated in the reconstruction were road design features that facilitate proper drainage and minimize erosion. Reseeding of the roadside cut banks was also conducted and has successfully germinated to aid in the stabilization of the road.

Issues concerning safety and the environment can be better solved through collaborative efforts and through the development of committees and partnerships. These types of collaborative efforts will continue for future road construction and maintenance through the San Juan Basin Public Roads Committee.

Tularosa Creek Erosion Control

Project recipient: Las Cruces Field Office, BLM

Project location: Tularosa Valley Watershed

Twenty erosion control structures were maintained/rebuilt along a two-mile tributary of Tularosa Creek. These structures were part of those constructed for the last seven years throughout the watershed. They primarily exist as earthen “plugs” in areas with gully erosion, some of which were damaged by recent heavy rains this year.

Rangeland Health/Restoration - Northern New Mexico Watershed Restoration

Project recipient: Farmington Field Office, BLM

Cooperators: Rio Puerco Watershed Committee

Project cost: \$145,000 BLM funds

Project location: Animas, Upper San Juan and Arroyo Chico watersheds

Approximately, 2000 acres was treated in the Animas and Upper San Juan stream reaches and the remaining 10,000 acres was in the Arroyo Chico stream reach, which drains into the Rio Pureco to improve grass cover and reduce soil erosion and sedimentation. The Tebuthiuron was applied at a rate of 0.3 pounds of active ingredient per acres, thinning the sage, thus leaving some sage for those species that are sage obligates. Buffer strips (fifty foot or more) are left along tree lines to provide additional sage for deer browse and other wildlife use.



Increased herbaceous cover two years following Tebuthiuron treatment creating improved watershed conditions and wildlife habitat.

Tebuthiuron has been proven over the years to be an effective tool for improving watershed function. It selectively thins sagebrush allowing herbaceous vegetation to respond to the reduction in competition for nutrients and water. In previous applications, the responses to healing watersheds that exhibit excessive erosion and sedimentation have been overwhelming. Thinning of the sage increases forage produced (primarily grasses), improves biodiversity, and wildlife potential. Over the years we have learned that it substantially improves the watershed thus a greater focus has been toward watershed restoration and improvements to water quality through reduced erosion and sedimentation.

Maintain/Restore Riparian Areas-Carrizo Sediment Retention Fence

Project Recipient: Farmington Field Office, BLM

Cooperator: William Field Services

Project cost: \$8000 BLM funds

Project location: Blanco Canyon Watershed

Carrizo Canyon was once a healthy and vibrant riparian area but over time has gradually become non-functional riparian zone. In an effort to help restore and move this drainage toward a functioning riparian system, sediment retention fences were constructed in the bottom of Carrizo Wash. Floodwater will drop out the sediment on the backside (downstream) and create a suitable seedbed for cottonwood and willow establishment. In addition the establishment of the riparian vegetation will trap and hold a tremendous amount of sediment by protecting stream bank from erosion.



Completion of the Riparian Sediment Retentions Fences in Carrizo Wash.

Previous attempts to improve riparian areas through the planting of whips or poles have resulted in very poor success. Planting would seem to do well the first year then would die back with very few (less than 5 percent) survivors the following year. It was determined that if a suitable seedbed was prepared that natural regeneration of desirable riparian vegetation would follow and flourish. It was also learned that livestock grazing must be controlled in the riparian areas during the growing season to protect establishment and recruitment of riparian species. After completion of projects in adjacent drainages, the establishment of cottonwood seedlings and other riparian vegetation were observed the following year. The control of domestic livestock during the growing season is paramount to the success of these types of projects.



Establishment of Cottonwood seedlings at a Riparian Sediment Retention Fence location in an adjacent drainage. Similar results are expected for the Carrizo Wash.

Armijo Watershed Project

Project recipient: Socorro Field Office, BLM

Project location: Rio Grande-Albuquerque Watershed

Earthen detention structures were constructed to reduce erosion and non-point source pollution and restore watershed condition.

Puertecito Watershed Project

Project recipient: Socorro Field Office, BLM

Project location: Rio Salado Watershed

Earthen detention structures were constructed as part of the Bureau of Land Management's effort to reduce active sheet and gully erosion and non-point source pollution.

Tularosa Creek Salt Cedar Control

Project recipient: Las Cruces Field Office, BLM

Project location: Tularosa Valley

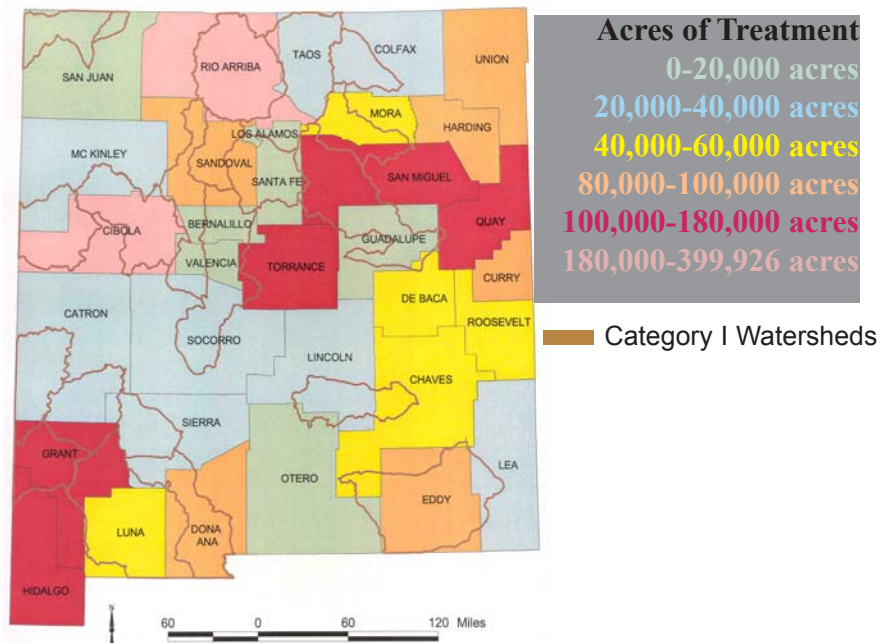
Salt cedar was removed and chemically treated with ARSENAL in an effort to eradicate tamarix from a 2-mile stretch of Tularosa Creek acquired by BLM in a land exchange.



Natural Resources Conservation Service assists people, including groups and units of government, through local conservation districts to achieve objectives for sustained use of soil, water, and related resources. This assistance includes: technical advice to landowners and land users with the installation of resource management systems (including soil and water conservation practices); training people to plan, install, maintain, and assess resource management systems; and cost sharing funds to help install conservation practices and systems.

Each conservation plan addresses soil, water, air, plant, and animal resources. Nutrient, pest, and waste management components, which address proper source, rate, timing and method of application, are developed as part of the plan where applicable. Conservation practices are selected to control or reduce identified and potential nutrient, sediment, animal waste, salt, and pesticide pollution. Emphasis is placed on both on and off site effects of the pollution source and control method. Planning assistance is not only provided on a field or farm level but also on a watershed level with the collaboration of all conservation partners. Water quality technical assistance provided to individuals, groups and units of government is based on these plans. The conservation partnership participates actively in developing and implementing the State Nonpoint Source Management Plan. Other collaborative interagency efforts in

FY2002 NRCS Conservation Treatments in New Mexico



water quality include tool and technology development and transfer, data sharing and database development, policy development, training, public outreach, and project design, implementation, and evaluation.

A new certification program of comprehensive nutrient management planning was established in 2002. A training course was provided in August 2002 for NRCS and CES employees, other agencies, private consultants, and producers. Another course is planned for November 2002. These participants developed comprehensive nutrient management plans for animal feeding operations in New Mexico in order to prevent runoff and leaching of animal manure into surface and ground water. Comprehensive Nutrient Management Plans were developed by the NRCS field offices in Roswell and Lovington. Funding has become available for manure management through the Farm Bill.

The NRCS installed conservation buffers and practiced erosion reduction, irrigation water management, nutrient management, pest management, prescribed grazing, residue management, and waste management in 2002.

